UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,072	10/26/2001	Thomas M. Cronin	10559/581001/P11135	5812

20985   7590   04/07/2005

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER
GUILL, RUSSELL L

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/053,072	CRONIN, THOMAS M.
	Examiner	Art Unit
	Russell L. Guill	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _26 October 2001_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1 - 30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _10/08/2002_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
    application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 30 have been examined. Claims 1 – 30 have been rejected.

Specification

2. The disclosure is objected to because of the following informalities:

The sentence on page 7, lines 22 –23, appears to have an extra word.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the
> invention, and of the manner and process of making and using it,
> in such full, clear, concise, and exact terms as to enable any
> person skilled in the art to which it pertains, or with which it is
> most nearly connected, to make and use the same and shall set
> forth the best mode contemplated by the inventor of carrying out
> his invention.

4. Claims 8, 18, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification appears to imply that an up-date cycle occurs during a

frame up-date *(page 4, lines 2 – 9, and page 6, lines 12 - 14)*. The specification appears to imply that a particle's attribute(s) may, or may not, be changed during an up-date cycle depending on a particle's attributes. However, the occurrence of the up-date cycle appears to be fixed at the frame up-date occurrence, but the claims appear to imply that the occurrence of an up-date cycle is dependent on a particle attribute.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims
> particularly pointing out and distinctly claiming the subject matter
> which the applicant regards as his invention.

6. Claims 1, 11 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites, "modifying at least one attribute of a particle based on a distance between the particle and the particle path". Claims 11 and 21 recite, "modify at least one attribute of a particle based on a distance between the particle and the particle path". By definition, a particle does not deviate from its path. For the purpose of claim interpretation, the phrase, "particle path" is interpreted as "particle control path". Appropriate correction or amendment is required.

7. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 6, claim 6 recites, "a closest point on the path". The term "path" lacks adequate antecedent basis. For the purpose of claim interpretation, the phrase, "path" is interpreted as "particle control path". Appropriate correction or amendment is required.

8. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 16, claim 16 recites, "between the particle and a closest point and the particle". The Examiner cannot determine the meaning of the phrase. For the purpose of claim interpretation, the phrase, "and the particle" is interpreted as "on the particle control path". Appropriate correction or amendment is required.

9. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 17, claim 17 recites, "wherein one the control algorithm". The Examiner cannot determine the meaning of the phrase. For the purpose of claim interpretation, the phrase, "wherein one the control

algorithm" is interpreted as "wherein the control algorithm".

Appropriate correction or amendment is required.

Claim Rejections - 35 USC § 102

10.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section

made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication
in this or a foreign country or in public use or on sale in this
country, more than one year prior to the date of application for
patent in the United States.

11.   Claims 1, 11 and 21 are rejected under 35 U.S.C. 102(b) as being

anticipated by Cohen (U.S. Patent 6,014,151).

11.1. Cohen teaches receiving a definition of a particle path *(figure 3,
item 301, and column 5, lines 26 – 30)*.

11.2. Cohen teaches modifying at least one attribute of a particle

based on a distance between the particle and the particle path

(figure 3, item 311, and column 5, lines 40 – 42).

11.3. Cohen teaches rendering the particle *(column 3, lines 38 – 43,
and column 1, lines 5 – 10)*.

11.3.1.   Regarding particle *(column 3, lines 38 – 43, and column 1, lines 5 – 10)*; since the field of invention is computer graphics animation, it is inherent that the particles are rendered.

11.4. Regarding claim 11, Cohen appears to teach a machine-readable medium that stores machine-executable instructions *(figure 1, and column 2, lines 49 – 67, and column 3, lines 1 – 20)*.

11.5. Regarding claim 21, Cohen appears to teach a memory that stores executable instructions, and a processor that executes the instructions *(figure 1, and column 2, lines 49 – 67, and column 3, lines 1 – 20)*.

12.   Claims 2, 12 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen (U.S. Patent 6,014,151).

12.1. Claim 2 is a dependent claim of claim 1, and thereby inherits all of the rejected limitations of claim 1.

12.2. Claim 12 is a dependent claim of claim 11, and thereby inherits all of the rejected limitations of claim 11.

12.3. Claim 22 is a dependent claim of claim 21, and thereby inherits all of the rejected limitations of claim 21.

12.4. Cohen teaches receiving particle attribute information *(column 3, lines 37 – 47)*.

> **12.4.1.**   Regarding *(column 3, lines 37 – 47)*; characterizing a particle by parameters is inherently receiving particle attribute information.

12.5. Cohen teaches generating a set of attributes based on the particle attribute information particle attribute information *(column 4, lines 65 – 67, and column 5, lines 1 - 6)*.

> **12.5.1.**   Regarding *(column 4, lines 65 – 67, and column 5, lines 1 - 6)*; the initial speed and direction of the particle are particle attributes, and the trajectory of the particle is generating new particle attributes based on the original particle attribute information.

13.   Claims 3, 13 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen (U.S. Patent 6,014,151).

13.1. Claim 3 is a dependent claim of claim 1, and thereby inherits all of the rejected limitations of claim 1.

13.2. Claim 13 is a dependent claim of claim 11, and thereby inherits all of the rejected limitations of claim 11.

13.3. Claim 23 is a dependent claim of claim 21, and thereby inherits

all of the rejected limitations of claim 21.

13.4. Cohen teaches receiving coordinates for a set of points that are

continuously connected using a mathematical construct *(column*

4, lines 20 – 30).

13.4.1.   Regarding *(column 4, lines 20 – 30)*; defining a

particle path using B-splines is inherently receiving

coordinates for a set of points that are continuously connected

using a mathematical construct.

13.5. Cohen teaches receiving a control algorithm corresponding to

the particle path *(column 4, lines 29 – 36)*.

13.5.1.   Regarding *(column 4, lines 29 – 36)*; path parameters

that control the force that affect particles is inherently a

control algorithm corresponding to the particle path.

14.   Claims 4, 14 and 24 are rejected under 35 U.S.C. 102(b) as being

anticipated by Cohen (U.S. Patent 6,014,151).

14.1. Claim 4 is a dependent claim of claim 3, and thereby inherits all

of the rejected limitations of claim 3.

14.2. Claim 14 is a dependent claim of claim 13, and thereby inherits

all of the rejected limitations of claim 13.

14.3. Claim 24 is a dependent claim of claim 23, and thereby inherits all of the rejected limitations of claim 23.

14.4. Cohen teaches the methods of claims 3, 13, and 23 wherein the mathematical construct comprises a spline curve *(column 4, lines 20 – 30)*.

15. Claims 7, 17 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen (U.S. Patent 6,014,151).

15.1. Claim 7 is a dependent claim of claim 4, and thereby inherits all of the rejected limitations of claim 4.

15.2. Claim 17 is a dependent claim of claim 14, and thereby inherits all of the rejected limitations of claim 14.

15.3. Claim 27 is a dependent claim of claim 24, and thereby inherits all of the rejected limitations of claim 24.

15.4. Cohen teaches the methods of claims 4, 14 and 24 wherein the control algorithm is defined to change at least one of a position attribute, a color attribute and a size attribute of the particle during an up-date cycle *(column 4, lines 65 – 68, and column 5, lines 1 – 6)*.

15.4.1.   Regarding *(column 4, lines 65 – 68, and column 5, lines 1 – 6)*; since the particle is following a trajectory through

time, it is inherent that the particle position attribute is

changed during each update cycle.

16.   Claims 8, 18 and 28 are rejected under 35 U.S.C. 102(b) as being

anticipated by Cohen (U.S. Patent 6,014,151).

16.1. Claim 8 is a dependent claim of claim 7, and thereby inherits all

of the rejected limitations of claim 7.

16.2. Claim 18 is a dependent claim of claim 17, and thereby inherits

all of the rejected limitations of claim 17.

16.3. Claim 28 is a dependent claim of claim 27, and thereby inherits

all of the rejected limitations of claim 27.

16.4. Cohen teaches the methods of claims 7, 17, and 27 further

comprising determining an occurrence of the up-date cycle

according to one of a particle's age, position, color and size

(column 5, lines 13 - 28).

16.4.1.   Regarding *(column 5, lines 13 – 28)*; since the

particle is following a trajectory through time, it is inherent

that the particle position attribute is changed during each

update cycle.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the

basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not
> identically disclosed or described as set forth in section 102
> of this title, if the differences between the subject matter
> sought to be patented and the prior art are such that the
> subject matter as a whole would have been obvious at the
> time the invention was made to a person having ordinary
> skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which
> the invention was made.

18. Claims 5, 15 and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cohen (U.S. Patent 6,014,151) in view of Foley

(Foley, James D.; van Dam, Andries; Feiner, Steven K.; Hughes, John

F.; Computer Graphics: Principles and Practice, 1996, Addison-

Wesley).

18.1. Claim 5 is a dependent claim of claim 4, and thereby inherits all

of the rejected limitations of claim 4.

18.2. Claim 15 is a dependent claim of claim 14, and thereby inherits

all of the rejected limitations of claim 14.

18.3. Claim 25 is a dependent claim of claim 24, and thereby inherits

all of the rejected limitations of claim 24.

18.4. The art of Cohen is directed toward computer graphics

animation, and to a method for allowing a particle to follow a path

(column 1, lines 4 - 9).

18.5. The art of Foley is directed to computer graphics *(Title)*.

18.6. Cohen appears to teach using a spline curve *(column 4, lines*

20 - 29).

18.7. Cohen does not specifically teach using a Catmull-Rom spline

curve.

18.8. Foley appears to teach a Catmull-Rom spline curve *(pages 504*

- 505, section 11.2.6).

18.9. Cohen and Foley are analogous art because they are both

directed to the same problem area, that of computer graphics.

18.10.   The motivation to combine the art of Foley with the art of

Cohen would have been obvious given the desirability expressed in

Cohen for a path that particles interact with *(column 1, lines 35 -*

42), and the use of splines to define the path *(column 4, lines 20*

- 29), and the usefulness recited in Foley of Catmull-Rom splines

to define a path in 3D space that follows a series of points of a

curve *(pages 504 -505, section 11.2.6, first paragraph)*.

18.11. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Foley with the art of Cohen to produce the inventions of claims 5, 15 and 25.

19. Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (U.S. Patent 6,014,151) in view of Tolson (U.S. Patent 5,500,925).

19.1. Claim 6 is a dependent claim of claim 4, and thereby inherits all of the rejected limitations of claim 4.

19.2. Claim 16 is a dependent claim of claim 14, and thereby inherits all of the rejected limitations of claim 14.

19.3. The art of Cohen is directed toward computer graphics animation, and to a method for allowing a particle to follow a path *(column 1, lines 4 – 9)*.

19.4. The art of Tolson is directed to dynamic computer graphics processing (computer animation of images) *(Title and Abstract)*.

19.5. Cohen does not specifically teach determining a distance between a particle and a closest point on a line.

19.6. Cohen does not specifically teach determining an amount of change to the particle attribute based on the distance.

19.7. Tolson appears to teach determining a distance between a particle and a closest point on a particle control path *(figure 7, and column 7, lines 14 - 29)*.

19.7.1.   Regarding *(figure 7, and column 7, lines 14 - 29)*; it is obvious that the line force is determined by a perpendicular line from a particle to the line, which is the closest point on the line.

19.8. Tolson appears to teach determining an amount of change to the particle attribute based on the distance *(column 3, lines 30 - 45, and figure 7, and column 7, lines 14 - 29)*;

19.8.1.   Regarding *(column 3, lines 30 - 45, and figure 7, and column 7, lines 14 - 29)*; since the particles react to forces in a predictable fashion, obeying the laws of physics, and since the force is determined by the distance to a line, it is obvious that an amount of change to a particle attribute (e.g. position) is determined by the distance to the line.

19.9. Cohen and Tolson are analogous art because they are both directed to the same problem area, that of computer graphics animation.

19.10.   The motivation to combine the art of Tolson with the art of

Cohen would have been obvious given the desirability of providing

image processing effects recited in Tolson *(column 1, lines 28 –*

32), and the solution methods provided in Tolson.

19.11.   Therefore, as discussed above, it would have been obvious to

the ordinary artisan at the time of invention to use the art of

Tolson with the art of Cohen to produce the inventions of claims 6

and 16.

20.   Claims 9 and 19 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cohen (U.S. Patent 6,014,151) and Tolson (U.S.

Patent 5,500,925).

20.1. Claim 9 is a dependent claim of claim 6, and thereby inherits all

of the rejected limitations of claim 6.

20.2. Claim 19 is a dependent claim of claim 16, and thereby inherits

all of the rejected limitations of claim 16.

20.3. Cohen appears to teach modifying a particle attribute an

amount that varies based on a distance to a particle control path

(Abstract, lines 5 - 8).

21.   Claims 10 and 20 rejected under 35 U.S.C. 103(a) as being

unpatentable over Cohen (U.S. Patent 6,014,151) and Tolson (U.S.

Patent 5,500,925).

21.1. Claim 10 is a dependent claim of claim 6, and thereby inherits

all of the rejected limitations of claim 6.

21.2. Claim 20 is a dependent claim of claim 16, and thereby inherits

all of the rejected limitations of claim 16.

21.3. Cohen appears to teach a particle system that is three-

dimensional and the particles are defined by three-dimensional

coordinates *(Abstract, lines 2 - 5)*.

21.3.1.   Regarding *(Abstract, lines 2 - 6)*; it is obvious that

particles in three-dimensions are defined by three-dimensional

coordinates.

22.   Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable

over Cohen (U.S. Patent 6,014,151) and Foley (Foley, James D.; van

Dam, Andries; Feiner, Steven K.; Hughes, John F.; Computer

Graphics: Principles and Practice, 1996, Addison-Wesley) in view of

Tolson (U.S. Patent 5,500,925).

22.1. Claim 26 is a dependent claim of claim 25, and thereby inherits

all of the rejected limitations of claim 25.

22.2. The art of Cohen is directed toward computer graphics

animation, and to a method for allowing a particle to follow a path

(column 1, lines 4 – 9).

22.3. The art of Tolson is directed to dynamic computer graphics

processing (computer animation of images) *(Title and Abstract)*.

22.4. Cohen does not specifically teach determining a distance

between a particle and a closest point on a line.

22.5. Cohen does not specifically teach determining an amount of

change to the particle attribute based on the distance.

22.6. Tolson appears to teach determining a distance between a

particle and a closest point on a particle control path *(figure 7,*

and column 7, lines 14 - 29).

22.6.1. Regarding *(figure 7, and column 7, lines 14 - 29)*; it

is obvious that the line force is determined by a perpendicular

line from a particle to the line, which is the closest point on

the line.

22.7. Tolson appears to teach determining an amount of change to

the particle attribute based on the distance *(column 3, lines 30 –*

45, and figure 7, and column 7, lines 14 - 29);

22.7.1.   Regarding *(column 3, lines 30 – 45, and figure 7,*

and column 7, lines 14 - 29); since the particles react to

forces in a predictable fashion, obeying the laws of physics,

and since the force is determined by the distance to a line, it is

obvious that an amount of change to a particle attribute (e.g.

position) is determined by the distance to the line.

22.8. Cohen and Tolson are analogous art because they are both

directed to the same problem area, that of computer graphics

animation.

22.9. The motivation to combine the art of Tolson with the art of

Cohen would have been obvious given the desirability of providing

image processing effects recited in Tolson *(column 1, lines 28 –*

32), and the solution methods provided in Tolson.

22.10.   Therefore, as discussed above, it would have been obvious to

the ordinary artisan at the time of invention to use the art of

Tolson with the art of Cohen to produce the invention of claim 26.

23.   Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable

over Cohen (U.S. Patent 6,014,151) and Foley (Foley, James D.; van

Dam, Andries; Feiner, Steven K.; Hughes, John F.; Computer

Graphics: Principles and Practice, 1996, Addison-Wesley) and Tolson

(U.S. Patent 5,500,925).

23.1. Claim 29 is a dependent claim of claim 26, and thereby inherits all of the rejected limitations of claim 26.

23.2. Cohen appears to teach modifying a particle attribute an amount that varies based on a distance to a particle control path *(Abstract, lines 5 - 8)*.

24. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (U.S. Patent 6,014,151) and Foley (Foley, James D.; van Dam, Andries; Feiner, Steven K.; Hughes, John F.; Computer Graphics: Principles and Practice, 1996, Addison-Wesley) and Tolson (U.S. Patent 5,500,925).

24.1. Claim 30 is a dependent claim of claim 26, and thereby inherits all of the rejected limitations of claim 26.

24.2. Cohen appears to teach a particle system that is three-dimensional and the particles are defined by three-dimensional coordinates *(Abstract, lines 2 - 6)*.
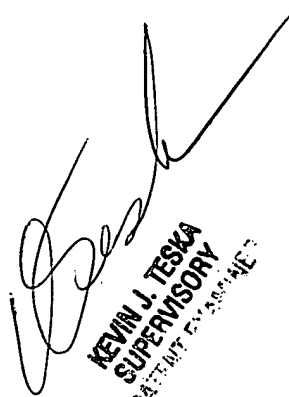
24.2.1. Regarding *(Abstract, lines 2 - 6)*; it is obvious that particles in three-dimensions are defined by three-dimensional coordinates.

Conclusion

25.   Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Russell L.

Guill whose telephone number is 571-272-7955. The examiner can

normally be reached on Monday – Friday 9:00 AM – 5:30 PM.

26.   If attempts to reach the examiner by telephone are unsuccessful,

the examiner's supervisor, Kevin Teska can be reached on 571-272-

3716. The fax phone number for the organization where this

application or proceeding is assigned is 703-872-9306. Any inquiry of

a general nature or relating to the status of this application should be

directed to the TC2100 Group Receptionist: 571-272-2100.

27.   Information regarding the status of an application may be obtained

from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from

either Private PAIR or Public PAIR. Status information for

unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private

PAIR system, contact the Electronic Business Center (EBC) at 866-

217-9197 (toll-free).

RG